



Owner's Manual

Operation and Maintenance Instructions

Wisper 805FE

January 2011 3rd edition

We strongly recommend that you read this entire manual before
using your Wisper bike

Wisper Limited



User Guide

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Introduction and Purchaser Responsibilities

Thank you for choosing a Wisper electric bicycle. By making the decision to use an electric bike you are helping to safeguard our environment by saving our planet's precious resources and reducing carbon pollution.

Before you use your Wisper bike you must read this manual carefully. If there is anything you do not understand completely please contact Voltage Bikes Ltd or your bike dealer. The statements below set out your responsibilities as the owner/rider of an electric bike.

It is your responsibility as a cyclist to obey all relevant federal and provincial laws and regulations that apply to the operation of a power assisted bicycle. The laws that apply to a power assisted bicycle are similar to those for a normal bicycle. However, there are some minor variations. For example, in British Columbia, the bicycle can only legally be used on the road by a person aged 16 years or older. In addition, an approved bicycle helmet must be used when riding.

If you are unfamiliar with cycling, we recommend that you attend a cycle proficiency course prior to using your electric bike. As with all bicycles it is important that you stay within safe limits and adjust your riding to match conditions; remember the bike will not stop as quickly on wet or icy surfaces.

It is the rider's responsibility to ensure they are in proper physical condition to ride a Wisper electric bicycle.

The bicycle must be assembled by a person competent in bike mechanics. None of Wisper Bikes Ltd, Voltage Bikes Ltd or any of its distributors, accept any legal liability for accident or injury caused by improper installation of any of the components utilised on this electric bicycle. If you are not fully competent with bicycle maintenance and tuning procedures, you must have your bike checked over by a qualified bicycle technician before riding it.

The rider is responsible for inspecting and making sure the bike is in safe working order prior to riding each time. Before each use of your bike you should:

- 1) Check the handle bars and handle bar stem are properly tightened;
- 2) Check all other nuts and bolts and fixings are properly tightened, pay particular attention to the motor fixings, wheel nuts, side kick stand, yoke and steering head

bearings;

- 3) Check brakes and brake isolators are functioning properly;
- 4) Check tire pressures are 60psi / 4.1bar and tires are not damaged;
- 5) Check reflectors and lights (if fitted) are functioning properly;
- 6) Make sure battery is fully charged;
- 7) Load battery into bicycle and turn on with key;
- 8) Check the power indicator lamps are illuminated on the left hand side of the handle bars. If they do not illuminate press the on / off switch once;

You must take your bike in to be serviced and checked by a qualified bike mechanic before 300km of riding or within three months, whichever occurs first. This is standard good practice for any new bike, and particularly important for an ebike with the extra loading placed on the wheels. The service must include spoke tensioning for both front and rear wheels.

Wisper bikes are not mountain bikes and should not be ridden as such. The bikes should not be jumped, ridden on terrain which causes significant jarring, or in areas where the motor or other electrical components are likely to become submerged.

Wisper offers a warranty on its bikes purchased from a Wisper dealer (see the owner's manual for details). **To validate the warranty, the retail customer must register the bike at www.wisperbikes.com under the warranty menu within 14 days of purchase.** The warranties will only be valid if the procedures set out in this manual are followed. For example, when not in use for long periods (e.g. over winter), the battery must be topped up periodically.

Operating an electric bicycle involves risk and danger which can result in serious bodily harm and injury to the rider or to other persons or property. These risks are potentially greater than the risks associated with riding a non-electric bicycle, due to the additional power supplied by the electric motor.

The purchaser/rider assumes all risks associated with operating the Wisper electric bicycle and fully assumes and accepts responsibility for all losses, cost and damages as a result of, or relating to, the operation of the electric bicycle including, without limitation, personal or third party injury or harm, and property damage or economic loss suffered by the owner/operator or by any third party.

Happy cycling!

Wisper Ltd



Part 1 Caring for your Wisper bike and checks

Although your Wisper bike has been thoroughly tested prior to delivery, it is very important that you check the bike again before its first use. Equally important are frequent and regular spot checks, they will protect you and your Wisper bike.

Please read this manual carefully. Only on full understanding of all the functions of this electric bicycle should you attempt to use it.

Your Wisper bike has been transported in a strong seven-layered corrugated carton. To save space it has been delivered with the handlebar stem, seat post seat, and pedals ready for assembly with the tool kit provided.

Your retailer may have assembled your bike for you if not you will find fitting instructions on the Wisper website www.wisperbikes.com

1 Before you set off for the first time

- 1.1 Check the handle bars and handle bar stem are properly tightened
- 1.2 Check all other nuts and bolts and fixings are properly tightened, pay particular attention to the motor fixings, side kick stand, yoke and steering head bearings
- 1.3 Check brakes and brake isolators are functioning properly
- 1.4 Check tyre pressures are correct and tyres are not damaged
- 1.5 Check reflectors and lights if fitted are functioning properly
- 1.6 Make sure battery is fully charged
- 1.7 Load battery into your bicycle's rear carrier and turn on the power ON/OFF button. Lock the battery into the rear carrier to ensure the battery's output connection is always connected properly.
- 1.8 Check the **power indicator lamps** are illuminated on the left hand side of the handle bars if they do not illuminate press the **on / off** switch once
- 1.9 To avoid dangerous unplanned acceleration, always make sure that the electrical system is turned off and the **power indicator lamps** are not illuminated when mounting, dismounting



or

leaving the bike unattended. For your safety, please turn off the power key on the battery when stopped or walking the bike

- 1.10 Remember to validate your warranty by visiting <http://wisperbikes.com/Warranty-Registration-Form.php> and filling in your details.

2 Before each use

It is important you perform a quick check of your bike every time you use it, checks should include the following, if you find any damage or problems do not use the bike until the problem has been solved or you have had the faulty item checked by a bike mechanic or your retailer.

- 2.1 Check tyres for any visible damage
- 2.2 Check tyre pressures
- 2.3 Check for any loose nuts bolts or fixings
- 2.4 Check brake functions
- 2.5 Check electronic functions
- 2.6 Check reflectors are in place and lights are working
- 2.7 Check your battery for any visible signs of damage

3 Battery care

- 3.1 Before you use the battery for the first time it is best to give it a full charge for 12 hours. To fully condition your new battery, you should complete three 'deep' discharge and charge cycles. This is achieved by using the bike until the battery is completely (or close to) drained and then fully charging your battery (this can take up to 12 hours for the first few charges). After this "conditioning" process you can then charge and discharge the battery as and when you require, although we recommend keeping it topped up.
- 3.2 A lithium ion battery will slowly discharge over time as it sits in storage. If a battery is allowed to fully discharge, this will stress the cells in the battery and reduce the capacity and life of the battery. During normal riding, the Wisper batteries have a battery management system (BMS) which switches off the electrical system when the voltage drops to a certain point i.e. the battery is not allowed to fully discharge and the cells are protected. However, the BMS will not prevent a battery from slowly discharging as it sits in storage. Therefore, it is important to ensure that your battery retains some charge over the winter months. Unfortunately, it is also not ideal to put your battery in storage with 100% charge as this can put some stress on the cells. The following actions are therefore recommended for battery care:
 - Store your battery with a partial charge, ideally 40-80%. While charging, you can check the number of green lights on the battery indicator (with the key

- switched on) ... aim for two-three lights (four lights is fully charged);
 - Depending on how fully charged the battery was initially, it will normally take about 1-2 hours to give the recommended partial charge;
 - If you end up charging your battery to 100% (the green light on the charging unit comes on), go for a ride to discharge it partially before storing the battery;
 - Check your battery every couple of months of storage and give it a top up if the battery indicator has dropped to one light;
 - Ideally, the battery should be stored in a cool place. Significantly elevated temperatures over prolonged periods can reduce battery capacity. Also avoid freezing the battery.
- 3.3 Before setting off on any journey it is always better to have a fully charged battery
- 3.4 Do not expose the bicycle or battery pack to fire, heat sources, acid or alkaline substances.
- 3.5 When leaving your bicycle during hot weather always leave in a shaded well ventilated area.
- 3.6 For best results always recharge the battery at room temperature
- 3.7 Before unloading the battery make sure it is turned off at the key and unlocked, pull the battery box from the rear carrier housing. Please refer to the picture
- 3.8 If your battery is damaged or appears to be overheating for any reason immediately return it to your retailer for advice and a safety check



4 Recharging your battery

- 4.1 First connect the charger to the mains and turn the mains power on. **Make sure the charger is turned off** (at the switch on the charger unit) and connect the charger to your battery (refer the recharge point picture). Finally, turn on the charger. It is important to undertake in this order or the battery will not charge properly. Red and yellow lamps on the charger indicate the battery is charging, when the yellow light turns green the battery is fully charged. Always turn off the charger and disconnect from the mains after charging. Always disconnect the charger from the mains before disconnecting the charger



from the battery. It is possible that the battery will take up to 12 hours to charge on the first three charges.

- 4.2 Always charge the battery always in a well ventilated area.
- 4.3 Do not leave the charger connected to the mains when not in use.

5 Water

- 5.1 Your electric bicycle is rain and splash proof.
- 5.2 The electrical components of the vehicle, such as motor, battery, and controller, must not be submerged in water.

6 Maintenance and adjustments

- 6.1 **IMPORTANT!** Do not attempt to open the casings of the battery, motor or controller it could be dangerous and all warranties will become void. If you experience a problem contact our service department or your retailer.
- 6.2 Wheel spokes should be adjusted after 300 kms of riding. Saddle tube should never be raised beyond the maximum indicated by a safety line around the tubes. The recommendation of the torque on the nuts as follows:

(A) Front axle nuts.	70N.M
(B) Back axle nuts.	46N.M
(C) Handlebar stem expander bolt.	18 to 20N.M
(D) Seat pillar clamp nut/bolt.	5-8N.M
(E) Brake cable anchor bolt.	5N.M
(F) Brake centre bolt.	M6:11N.M
(G) Seat clamp nuts.	24N.M
(H) Cotter pin nuts.	R:42N.M L: 46N.M
(I) Gear shifter nuts.	4N.M
(J) V brake caliper nuts.	10N.M
(K) Rear carrier nuts.	8N.M
(L) Mudguard bracket nuts.	8N.M

Other nuts/bolts torque depends on their size. **M4**:2.5-4.0N.M **M5**:4.0-6.0N.M
M6:6.0-7.5N.M
- 6.3 Your bike has a rear derailleur that will automatically tension your chain. However if the chain becomes loose or frequently comes off the drive wheel, you can easily adjust the chain tension by loosening the rear axle nuts slightly, and adjusting the tension bolts. Make sure that the chain runs freely and re-tighten the axle nuts.
- 6.4 The brake levers should lock the wheels when compressed half way between their open position and touching the handle bars.
- 6.5 Warning: Handlebar hand grips or tube end plugs should be replaced if damaged, as bare tube ends have been known to cause injury.
- 6.6 Warning: Any replacement forks must have the same rake and same tube inner

diameter as those originally fitted to the bicycle.

IMPORTANT braking distances increase on wet or icy roads.

6.7 Lubrication:

- 6.7.1 Once a month: lubricate the chain, all pivot points on derailleur and derailleur pulleys with chain lube. Also apply light oil to the upper fork leg where the lower leg slides on it. Wipe clean.
- 6.7.2 Every three months: lubricate the brake lever pivots and gears with light oil / chain lube. Also lubricate the brake bushes (not the rubber brake shoes or disc) with a little grease.
- 6.7.3 Once a year: have your dealer re-grease the bottom bracket bearings, headset bearings, wheel bearings. Also, lubricate pedal axles where they thread into the crank arms, handlebar stem.

6.8 Recommended tools for proper maintenance:

- Torque wrench with lb•in or N•m gradations;
- 2, 4, 5, 6, 8 mm Allen wrenches
- 9, 10, 15 mm open-end wrenches;
- 15 mm box end wrench;
- Socket wrench and 14, 15, and 19 mm sockets;
- T25 Torx wrench;
- No. 1 Phillips head screwdriver;
- Bicycle tube patch kit; and
- tire pump

7 Technical specifications & performance

Type Wisper Works 805fe

Performance

Assisted range	Up to 40km
Maximum speed	25kph (15.5mph)
Weight with battery	22.1kg max
Maximum load	100kg

Battery specifications

Cell Type	Advanced Environmental Panasonic Lithium Cells
Capacity	9Ah
Rated voltage	36V

Main Controller specifications

Low voltage safeguard 31.5V

Overload current safeguard 14A

Main hub motor specifications

Motor type Hi speed brushless

Rated power Aus Singapore 200W / NZ Europe North America 250W

Rated voltage 36V

Charger Lithium 115 to 230V 24V fan cooled

8 Simple Trouble shooting

Problem	Possible reasons	Trouble shooting
Top speed too slow	1. Low battery voltage 2. Damage to motor driveline	1. Recharge battery fully 2. Call service
Power on but motor not working	1. Battery not connected 2. Fused 3. Motor connection damaged	1. Re install battery 2. Replace fuse 3. Call service
Driving shorter distance per recharge	1. Tyre pressure too low 2. Undercharge or charger fault 3. Battery capacity loss or damage	1. Check pressures 2. Recharge completely or have charger inspected 3. Replace battery



Part 2 Controls and Equipment

In this section we will describe the functions and any specific maintenance needed on all the main controls and ancillary equipment.

9 Battery on off and battery lock

- 9.1 Your Wisper bike has one key. This key is for locking the battery into the bike. Please keep a careful note of the key number as we cannot replace it without this number should it become mislaid.
- 9.2 The battery is connected to the bike's electrical system automatically when you push the battery into the rear carrier housing. To turn on the bike's electrical system, switch the on/off button in the battery box to on, to turn off the bikes electrical system, switch the on/off button in the battery box to off. (Please refer to the picture)
- 9.3 After the battery has been turned on the bike is ready for use. The battery box capacity indicator is on the handle bar for ease of use.
- 9.4 To lock the battery into the bike frame turn the key clockwise to the 'lock' position, engaging the locking bolt. If you want to unlock the battery, turn the key anti-clockwise from lock position. Read 3 and 4 for battery care and advice on charging at the beginning of this manual.
- 9.5 The battery can be charged either on or off the bike.
- 9.6 To remove the battery first turn off the power by switching the on/off button. Unlock the battery and pull out from the rear carrier housing.



On the handle bars

10 The battery capacity box

- 10.1 When the battery is switched on and the ON/OFF button in the handle bar is pressed the lights on the capacity indicator on the handle bars will illuminate showing the battery capacity available. When the battery is switched off the lights will go out and you will not get any assistance from the battery or motor. The bike is then an unpowered push bike.



11 Gear shifters

- 11.1 805fe has 16 gears, 2 front chain drives (34 and 50 teeth) and 8 rear sprockets (11 to 30 teeth). The front shifter will move the chain between the high gear chain drive **H** and the low **L**. (Please refer to the picture). The rear shifter will move the chain from the highest gear to the lowest by simply moving the lever from left to right.

12 Pedelec mode and ASSIST button

- 12.1 When you first ride your Wisper bike you will notice that after one turn of the pedals the motor will start working to assist you by adding power to the back wheel. This is the standard or pedelec mode. To continue using the pedelec mode you must keep turning the pedals, if you stop the motor will stop and the bike will slow to a halt. If you start pedaling again after one turn the motor will start again.
- 11.2 You will find ASSIST button on the panel on the handle bars with L.M.H (low, Medium, High) printed close to three LED's (small lights). When the ASSIST button is pressed and the LED illuminates the instant power in pedelec mode is 80% of the maximum power available from the motor. When the button is pressed again and again, the LED shift between L M and H. L means 40% of the maximum power in pedelec mode, M means 80%, H means 100%.
- 11.3 High mode is generally used when you need the maximum amount of assistance from the motor. Low mode is used when you do not need the instant power of 80% or 100%. Low mode is used in high traffic situations or poor conditions such as ice and snow when 80% of full power immediately could be dangerous.

Warning: The electric motor on your bike is very powerful and if you set off in high assist mode may cause the front wheel to spin. This is the same on any motorized vehicle. We therefore highly recommend that you always start off with the bike set to the lowest level of assistance and only use a small amount of throttle until you are moving forwards at walking pace.

13 Throttle

13.1 No throttle is available in this bike.

IMPORTANT Make sure your handle bar grips are always intact and in good condition. Uncovered handlebar tubes can be very dangerous.

14 Brakes

14.1 Front and Rear: V brake

14.2 The brakes on your Wisper bike are fitted with cut outs which are required by law. This means that when you pull on either the back or front brake lever the motor immediately stops working.

14.3 Full details of how to adjust and maintain your brakes:

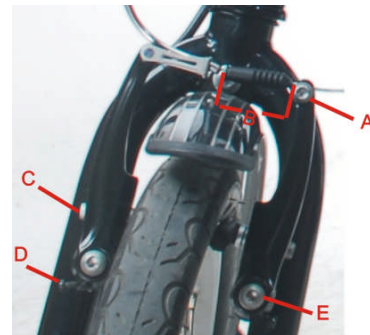
Once a month, inspect brake pads for wear. If the grooves in the braking surface are less than 2 mm deep, replace the pads.

V brake:

14.3.1. Use 5mm Allen key to loosen bolt A, then take the cable out. Use 5mm Allen key to loosen bolts C (right & left), then take the spacers and washers out

14.3.2. Install new brake pads, then with both pads pressed against the wheel rim, ensure that distance B (in the diagram) does not exceed 65mm. To decrease distance B, exchange wide & narrow spacers on each brake pad. Before finally tightening brake pads, make sure they are aligned correctly on the rim, and there is a gap of 1mm between the top of the rim and the top of the pad. Hold each pad against the rim (one at a time) & tighten bolt C. Finally tighten to 6-8N.M

14.3.3. Insert cable into bolt A, slot cable guide pipe into holder and fit protector over the guide pipe end. Set cable in bolt A so that combined pad/rim clearance (the gaps from left pad to left rim surface and from right pad to right rim surface) is 2mm, then tighten "A" bolt. Finally tighten to 6-8N.M.



A-Cable clamp bolt
C-pad fixing bolt
E-Arm fixing bolt
B-No contact
D-Centering screw

Balance brake arms by turning screw D. Depress brake lever a few times while checking to see that tension is equal for both arms. Pad/rim contact should occur at the same time each side. Clearance should be 1mm each side. Do not set tensions too high.

14.3.4. Re adjusts pads so they are properly aligned (see step 2), as tension adjustment will probably have altered the original pad alignment.

14.3.5. Installing brake pads.

14.3.5.1. Position each pad on an opposite side of the holder so that two breaking surfaces are facing each other.

14.3.5.2. Take care not to touch the braking surfaces, push the pads in the holder together and insert into the caliper so that the protruding lip with the retainer bolt hole is aligned with the bolt hole on the caliper.

14.3.5.3. Insert the retainer bolt and tighten it with a 3mm Allen wrench, finally tighten to 3-5N.M

15 The front connection box

15.1 The front connection box allows for the easy removal for repair or replacement of any of the electronic components on the handle bars.



16 Quick release saddle height adjustment

16.1 Your Wisper bike has been fitted with a quick release saddle post collar to facilitate the movement of the saddle to remove the battery or to change the riding position.

16.2 It is important that the nut on the collar is tightened so the post will not move in the bike tube. Make this adjustment with the quick release lever in the open position.

16.3 Adjust the seat to the correct height and close the lever. When you sit on the saddle there should be no vertical movement at all in the saddle post.

IMPORTANT never raise the saddle past the point where the maximum marks on the saddle post are visible above the quick release collar

17 Rims and spokes

It is essential to get your spokes checked and tightened after 300 km. If this service has not been undertaken at the correct time this may cause damage to the wheels and spokes that will not covered under our guarantee.

18 Chain and drive wheel

- 18.1 Lightly oil the chain with bicycle chain oil at least once a month.
- 18.2 Because your bike has a rear derailleur the chain will be automatically adjusted.

19 Derailleur

Full details on how to adjust and maintain your derailleur can be found on our website www.wisperbikes.com Electric bikes, Manuals.



Warranty

Repair or replacement of components

IMPORTANT To validate this Warranty the retail customer must register the bike at www.wisperbikes.com within 14 days of purchase.

Only use this product in accordance with this user manual. We offer a limited warranty on the following items.

1	The main frame	Six years
2	Gears, bearings, motor shell, hub motor, front forks	Two years
3	Handle bar controls, brakes (excluding brake shoes and pads)	One year
4	Controller and Charger	Two years
5	Battery casing, battery leak, battery capacity step-down more than 30%	Year one full replacement; years two and three pro rata
6	Paintwork (excluding deliberate or accidental damage)	Two years
7	Front and rear axle, flywheel or chain wheel	One year
8	Electro plating, on wheel rims, rack and kickstand	Six months
9	Other cases that render the bike unsafe to use.	By negotiation

1. If the product has a quality fault within 15 days of delivery the part will be repaired or replaced or in exceptional circumstances we may replace the whole vehicle.

2. The period of assurance shall commence from the day delivery was made to the retail customer, or from the day the retail customer collected the bike from the retailer.

3. To validate this Warranty the retail customer must register his / her bike at www.wisperbikes.com within 14 days of purchase.

Exceptions to Limited Warranties

1. Damage resulting from misuse, not maintaining the vehicle or not following the guidelines within this user guide.
2. Accidental or deliberate damage.
3. Damage due to private repair or alteration by user or unauthorised service centre.
4. Failure to produce invoice or proof of purchase.
5. Spare parts and components worn in normal use.
6. Failure to register your bike at www.wisperbikes.com within 14 days of purchase.

It is essential to get your spokes checked and tightened after 300km. If this service has not been undertaken at the correct time this may cause damage to the wheels and spokes that will not covered under our guarantee.

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or

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